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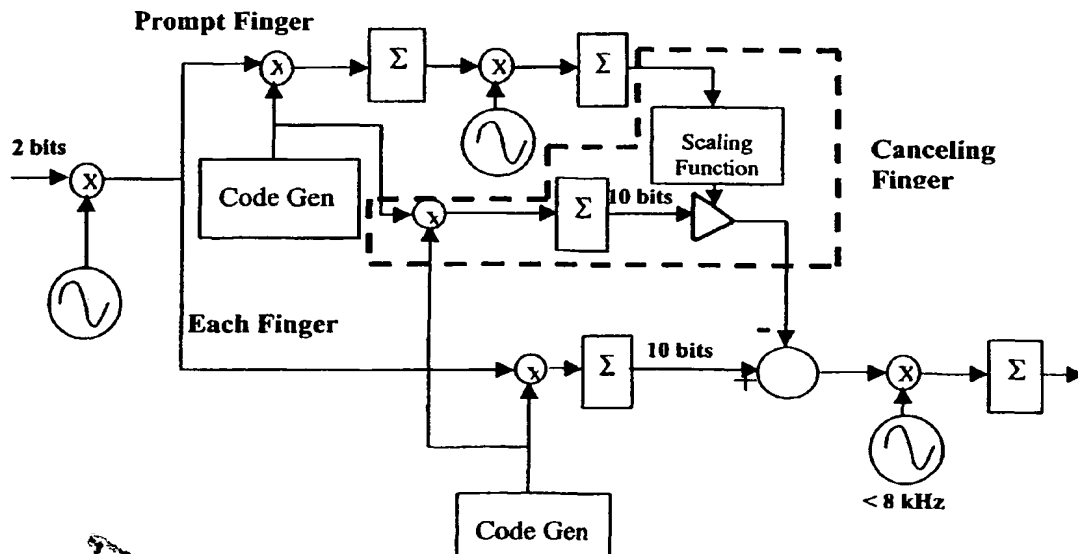
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(54) Title: SATELLITE-BASED POSITIONING SYSTEM IMPROVEMENT



(57) Abstract: A method, device and system for determining a receiver location using weak signal satellite transmissions. The invention involves a sequence of exchanges between an aiding source and a receiver that serve to provide aiding information to the receiver so that the receiver's location may be determined in the presence of weak satellite transmissions. With the aiding information, the novel receiver detects, acquires and tracks weak satellite signals and computes position solutions from calculated pseudo ranges despite the inability to extract time synchronization data from the weak satellite signals. The invention includes as features, methods and apparatus for the calibration of a local oscillator, the cancellation of cross correlations, a Doppler location scheme, an ensemble averaging scheme, the calculation of almanac aiding from a table of orbit coefficients, absolute time determination, and a modified search engine.